

FACT SHEET AND SUPPLEMENTAL INFORMATION
FOR THE PROPOSED REISSUANCE OF
THE NPDES GENERAL PERMIT FOR NEW AND EXISTING SOURCES
IN THE OFFSHORE SUBCATEGORY OF
THE OIL AND GAS EXTRACTION POINT SOURCE CATEGORY FOR
THE WESTERN PORTION OF THE OUTER CONTINENTAL SHELF OF
THE GULF OF MEXICO (GMG290000)

U.S. Environmental Protection Agency

Region 6

1201 Elm Street, Suite 500

Dallas, TX 75270

I. Legal Basis

Section 301(a) of the Clean Water Act (CWA or the Act), 33 USC 1311(a), renders it unlawful to discharge pollutants to waters of the United States in the absence of authorizing permits. 33 U.S.C. §§ 1311(a), 1342(a). CWA section 402, 33 U.S.C. section 1342, authorizes the Environmental Protection Agency (EPA) to issue National Pollutant Discharge Elimination System (NPDES) permits allowing discharges on the condition they will meet certain requirements, including CWA sections 301, 304, 306, 401 and 403. Those statutory provisions require NPDES permits include effluent limitations for authorized discharges that: (1) meet standards reflecting levels of technological capability; (2) comply with the EPA-approved state water quality standards; (3) comply with other state requirements adopted under authority retained by states under CWA section 510, 33 U.S.C. section 1370; and, (4) cause no unreasonable degradation to the territorial seas, waters of the contiguous zone, or the oceans.

CWA section 301 requires compliance with "best conventional pollution control technology" (BCT) and "best available pollution control technology economically achievable" (BAT) no later than March 31, 1989. CWA section 306 requires compliance with New Source Performance Standards (NSPS) no later than the effective date of such standards. Accordingly, three types of technology-based effluent limitations are included in the proposed permit. With regard to conventional pollutants, i.e., pH, BOD, oil and grease, TSS, and fecal coliform, CWA section 301(b)(1)(E) requires effluent limitations based on BCT. With regard to nonconventional and toxic pollutants, CWA sections 301(b)(2)(A), (C), and (D) require effluent limitations based on BAT. For New Sources, CWA section 306 requires effluent limitations based on New Source Performance Standards (NSPS). Final effluent guidelines specifying BCT, BAT, and NSPS for the Offshore Subcategory of the Oil and Gas Point Source Category (40 CFR 435, Subpart A) were issued January 15, 1993, and were published at 58 FR 12454 on March 4, 1993. Those guidelines were modified on January 22, 2001 (see 66 FR 6850, January 22, 2001), to include technology based treatment standards for discharges associated with the industry's use of synthetic based drilling fluids.

II. Regulatory Background

On April 3, 1981 (see 46 FR 20284), the EPA published the final general NPDES permit, TX0085642, which authorized discharges from facilities located seaward of the outer boundary of the territorial seas off Louisiana and Texas, an area commonly known as the Outer Continental Shelf. The 1981 general permit implemented "Best Practicable Control Technology Currently Available" (BPT), as established by effluent guidelines for the Offshore Subcategory (see 40 CFR 435). The permits expired April 3, 1983.

The EPA reissued the general permit on September 15, 1983 (48 FR 41494), with an expiration date of June 30, 1984. The permit was issued for a short period of time because promulgation of National Effluent Limitations Guidelines for Best Available Technology Economically Achievable were expected by 1983 and again by 1984. The limitations contained in the permit were unchanged in the 1984 reissuance; however, some changes were made for facilities located near the Flower Garden Banks.

On July 9, 1986 (51 FR 24897), the EPA reissued the general permit. In that action the EPA Region 6 issued a joint permit with Region 4 authorizing discharges from facilities located in the OCS throughout the Gulf of Mexico. That permit, numbered GMG280000, prohibited

discharge of oil based drilling fluids, oil contaminated drilling fluids, drilling fluids containing diesel oil, and drill cuttings generated using oil based drilling fluids. New limits were included in the permit for suspended particulate phase toxicity in drilling fluids, the drilling fluid discharge rate near areas of biological concern, and for free oil in drilling fluids and drill cuttings. The permit expired on July 1, 1991.

On November 19, 1992, the EPA Region 6 reissued the NPDES general permit for the Western Gulf of Mexico Outer Continental Shelf (57 FR 54642), GMG290000, covering operators of lease blocks in the Offshore Subcategory of the Oil and gas Extraction Point Source Category located seaward of the outer boundary of the territorial seas of Texas and Louisiana. As a part of that reissuance, new limits for produced water toxicity were added, as well as new limits for cadmium and mercury in stock barite, and a prohibition on the discharge of drilling fluids to which mineral oil has been added. That general permit was modified on December 3, 1993, to implement Offshore subcategory effluent limitations guidelines promulgated March 4, 1993 (58 FR 12504), and to include more accurate calculations of produced water critical dilutions. A general permit covering New Sources in that same area of coverage was issued and combined with the Western Gulf of Mexico Outer Continental Shelf general permit on August 9, 1996 (61 FR 41609). The permit expired on November 19, 1997, and was reissued in two parts on November 2, 1998 (63 FR 58722), and April 19, 1999 (64 FR 19156).

In the 1998 reissuance, the EPA Region 6 authorized new discharges of seawater and freshwater to which treatment chemicals, such as biocides and corrosion inhibitors, have been added. The maximum discharge rate limit for produced water was removed. To account for advances in drilling fluid technology, the permit was modified on December 18, 2001 (66 FR 65209), to authorize discharges associated with the use of synthetic based drilling fluids. Additional monitoring requirements were also included at that time to address hydrostatic testing of existing piping and pipelines and those discharges were authorized. That permit expired on November 3, 2003.

The general permit was reissued on October 7, 2004 (69 FR 60150). With that reissuance, the EPA included produced water monitoring requirements for facilities located in the hypoxic zone. The permit was issued for a three-year term rather than the typical five-year term so that the results from the produced water hypoxia study could be addressed in a timely manner if additional permit conditions were found to be warranted. In the 2007 permit reissuance (72 FR 31575), requirements to comply with new cooling water intake structure regulations were included. Sub-lethal effects were required to be measured for whole effluent toxicity testing. New testing methods were allowed for monitoring cadmium and mercury in stock barite. That permit expired September 30, 2012.

The EPA reissued the permit on September 28, 2012 (77 FR 61605). Operators are required to file electronic Notice of Intent and Discharge Monitoring Reports. The permit required characterization studies for produced water and water-based drilling fluids, respectively, so the EPA could evaluate whether those discharges might contribute heavy metals at a level toxic to aquatic life. Other major changes included toxicity testing requirements for hydrate control fluids, spill prevention best management practices, and allowing the discharge of limited amount of drilling fluids with cuttings due to the testing of subsea safety valves. The permit expired September 30, 2017.

The EPA reissued the permit on September 19, 2017 (82 FR 45845). The permit removed the requirements to submit eNOIs 24 hours prior to discharging, extended Notice of Termination (NOT) deadline to within one year after termination, allowed paper NOIs when the eNOI system is unavailable, allowed the primary operator to require day-to-day vessel operators to file eNOIs for their activities, increased the time to collect a produced water oil and grease sample from 30 minutes to 2 hours after a sheen is observed, reduced the cooling water intake velocity monitoring frequency, restored the monitoring exception for properly operated Marine Sanitation Devices (MSDs), increased the deadline to submit the Industry-wide Study Plan for well treatment, completion, and workover fluids was changed from 6 months to 18 months, and allowed submittal of SEAMAP data instead of entrainment monitoring for cooling water intake. Various other changes were included to clarify permit requirements. The permit will expire on September 30, 2022.

In this permit renewal, EPA proposes several major changes and proposed changes are discussed in Section VII of this fact sheet.

III. Coverage of Facilities and Locations

A facility means a platform, rig, ship, and any surface/sub-surface fixed or mobile structure from where exploration, development, or production operations are performed. The permit coverage area consists of lease areas that are located in and discharging to Federal waters in the Gulf of Mexico specifically located in the Central to Western portions of the Gulf of Mexico (GMG290000). The lease areas under Region 6 that begin in the Central portion include: Chandeleur, Chandeleur East, Breton Sound, Main Pass, Main Pass South and East, Viosca Knoll (but only those blocks under Main Pass South and East; the Viosca Knoll blocks between Main Pass and Mobile are under the EPA Region 4 jurisdiction), South Pass, South Pass South and East, West Delta, West Delta South, Mississippi Canyon, Atwater Valley, Lund, and Lund South. These named lease areas and all lease areas westward are part of Region 6. If facilities located in the Louisiana or Texas territorial seas want to discharge to the Outer Continental Shelf, operators need to file Notice of Intent (NOI) under the authority of this permit, GMG290000. But, facilities located in the Louisiana or Texas territorial seas and discharges to territorial seas must be covered under LAG260000 or TXG260000, respectively. Facilities located in the Louisiana or Texas territorial seas are not authorized to discharge drilling fluids and drill cuttings pursuant to the Offshore Subcategory guidelines (40 CFR 435.13 and 435.14).

IV. Types of Discharges Covered

The discharges proposed to be authorized by the reissued permit are listed below. The definitions of the waste streams are based on those given in the Offshore Subcategory Effluent Limitations Guidelines (40 CFR 435, Subpart A), except for miscellaneous discharges which were not covered by those guidelines. Most of the authorized waste streams are retained from the current 2012 issued permit.

A. Drilling fluids - the circulating fluid (mud) used in the rotary drilling of wells to clean and condition the hole and to counterbalance formation pressure. Classes of drilling fluids are:

(a) “Water-Based Drilling Fluid” means the continuous phase and suspending medium for solids is a water-miscible fluid, regardless of the presence of oil.

(b) “Non-Aqueous Drilling Fluid” means the continuous phase and suspending medium for solids is a water-immiscible fluid, such as oleaginous materials (*e.g.*, mineral oil, enhanced mineral oil, paraffinic oil, C₁₆-C₁₈ internal olefins, and C₈-C₁₆ fatty acid/2-ethylhexyl esters).

(i) “Oil-Based” means the continuous phase of the drilling fluid consists of diesel oil, mineral oil, or some other oil, but contains no synthetic material or enhanced mineral oil.

(ii) “Enhanced Mineral Oil-Based” means the continuous phase of the drilling fluid is enhanced mineral oil.

(iii) “Synthetic-Based” means the continuous phase of the drilling fluid is a synthetic material or a combination of synthetic materials.

B. Drill cuttings - the particles generated by drilling into subsurface geologic formations including cured cement carried out from the wellbore with the drilling fluid. Examples of drill cuttings include small pieces of rock varying in size and texture from fine silt to gravel. Drill cuttings are generally generated from solids control equipment and settle out and accumulate in quiescent areas in the solids control equipment or other equipment processing drilling fluid (*i.e.*, accumulated solids).

(a) “Wet Drill Cuttings” means the unaltered drill cuttings and adhering drilling fluid and formation oil carried out from the wellbore with the drilling fluid.

(b) “Dry Drill Cuttings” means the residue remaining in the retort vessel after completing the retort procedure specified in Appendix 7 of 40 CFR 435, Subpart A.

C. Deck drainage - any waste resulting from deck washings, spillage, rainwater, and runoff from gutters and drains including drip pans and work areas within facilities subject to this permit. A use of biocide for sump/drain systems to comply with proper operation and maintenance requirements is permitted and toxicity test for such a discharge of drainage is not required.

D. Produced water - the water brought up from the hydrocarbon-bearing strata during the extraction of oil and gas, and can include formation water, injection water, and any chemicals added downhole or during the oil/water separation process.

Produced water generated from the monoethylene glycol (MEG) reclamation processes including salt slurry generated from the salt centrifuge unit is regulated as produced water. However, separate monitoring requirements must be complied with if such salt slurry is not mixed and discharged with produced water waste stream.

E. Produced sand - slurried particles used in hydraulic fracturing, the accumulated formation sands, and scale particles generated during production. Produced sand also includes desander discharge from produced water waste stream and blowdown of water phase from the produced water treatment system.

F. Well treatment, completion fluids and workover fluids - well treatment fluids are any fluids used to restore or improve productivity by chemically or physically altering hydrocarbon-bearing strata after a well has been drilled; well completion fluids are salt solutions, weighted brines, polymers, and various additives used to prevent damage to the well bore during operations which prepare the drilled well for hydrocarbon production; and workover fluids are salt solutions, weighted brines, polymers, or other specialty additives used in a producing well to allow for maintenance, repair or abandonment procedures.

Packer fluids, low solids fluids between the packer, production string and well casing, are considered to be workover fluids and must meet the effluent requirements imposed on workover fluids. The 2012 permit clarified that propping agents returned with well treatment fluids or produced water meet the definition of produced sands. Fracking fluids are considered well treatment fluids under this permit.

G. Sanitary waste - human body waste discharged from toilets and urinals.

H. Domestic waste - material discharged from galleys, sinks, showers, safety showers, eye wash stations, hand washing stations, fish cleaning stations, and laundries.

I. Miscellaneous discharges –

Aqueous film forming foam (AFFF) - AFFF must be collected and stored for onshore disposal unless the vessel uses a non-fluorinated or alternative foaming agent.

Blowout preventer control fluid - fluid used to actuate the hydraulic equipment on the blow-out preventer. This permit action clarifies that this discharge includes fluid from the subsea wireline “grease-head.”

Boiler blowdown - discharges from boilers necessary to minimize solids build-up in the boilers, including vents from boilers and other heating systems.

Bulk transfer operations powder - de minimis amounts of bulk product (e.g., barite, cement, etc.) that may be released during transfers from supply boats to a drilling rig.

Desalinization unit discharge - wastewater associated with the process of creating freshwater from seawater.

Diatomaceous earth filter media - filter media used to filter seawater or other authorized completion fluids and subsequently washed from the filter.

Excess cement slurry - the excess mixed cement pumped to wells, including additives and wastes from equipment washdown, after a cementing operation. Mixed cement for equipment testing purposes does not meet the definition of excess cement slurry.

Hydrate control fluids - fluids used to prevent, retard, or mitigate the formation of hydrates in and on drilling equipment, process equipment and piping.

Mud, cuttings and cement at the sea floor - discharges that occur at the seafloor prior to installation of the marine riser and during marine riser disconnect, well abandonment and plugging operations.

Pipeline brines - brines used for pipeline/equipment preservation.

Source water and source sand - water from non-hydrocarbon bearing formations for the purpose of pressure maintenance or secondary recovery including the entrained solids.

Subsea cleaning fluids – acidic cleaning agents used to dissolve marine deposits on subsea equipment during subsea maintenance and intervention activities to assure proper seating of equipment operating and to avoid ingress of extremely high subsea pressures and egress (losses of containment) of fluids to the environment

Subsea production discharges - include: subsea wellhead preservation fluids, subsea production control fluid, umbilical steel tube storage fluid, leak tracer fluid, and riser tensioner fluids.

Untamated or treated ballast/bilge water - seawater added or removed to maintain proper draft (ballast water) or water from a variety of sources that accumulates in the lowest part of the vessel/facility (bilge water) without contact with or addition of chemicals, oil, or other wastes, or being treated for removal of contaminants prior to discharge. These definitions are modified from the current definitions to distinguish ballast water and bilge water and to add the treated ballast water and bilge water to the definition.

Untamated freshwater - freshwater which is discharged without the addition or contact of treatment, chemicals, oil, or other wastes; included are: (1) discharges of excess freshwater that permit the continuous operation of fire control and utility lift pumps; (2) excess freshwater from pressure maintenance and secondary recovery projects; (3) water used during training and testing of personnel in fire protection; and (4) water used to pressure test new piping.

Untamated seawater - seawater which is returned to the sea without the addition or contact of treatment chemicals, oil, or other wastes. Included are: (1) discharges of excess seawater which permit the continuous operation of fire control and utility lift pumps; (2) excess seawater from pressure maintenance and secondary recovery projects; (3) water released during the training and testing of personnel in fire protection; (4) seawater used to pressure test piping; (5) once through noncontact cooling water which has not been treated with biocides, and (6) seawater not treated by chemicals used during Dual Gradient Drilling.

J. Chemically Treated Seawater and Freshwater - seawater or freshwater to which corrosion inhibitors, scale inhibitors, and/or biocides have been added. The existing permitted discharges in the current permit include:

1. Excess seawater which permits the continuous operation of fire control and utility lift pumps,
2. Excess seawater from pressure maintenance and secondary recovery projects,
3. Water released during training of personnel in fire protection,
4. Seawater used to pressure test piping and pipelines,
5. Ballast water,
6. Once through non-contact cooling water,
7. Seawater used as piping or equipment preservation fluids, and
8. Seawater used during Dual Gradient Drilling.

The seawater used during Dual Gradient Drilling (DGD) is a practice of maintaining two effective fluid gradients in the wellbore annulus while drilling. The denser gradient is below the sea floor and the less dense gradient is above the sea floor. There are two discharges associated with DGD: one is seawater used to provide hydraulic power to Mud Lift Pump; and another is seawater used to provide static head in riser during DGD. Depending on the system design, corrosion inhibitors and biocides may need to be used to prevent corrosion and properly operate and maintain the DGD system.

For a sub-sea discharge of chemically treated seawater or freshwater used for piping and equipment preservation, where to collect discharge samples is not practical, the EPA authorizes those discharges by permitting the operator to conduct the required toxicity tests prior to the use of the product.

The EPA, in 2012, determined that toxicity tests are not required for miscellaneous discharges treated by bromide, chlorine, or hypochlorite. But, uses of bromide, chlorine, or hypochlorite are still required to be in compliance with the technology-based quantity limits.

V. Existing Permit Conditions Retained in the Proposed Permit

Conditions are based on: (A) NSPS for New Source facilities; (B) BCT to control conventional pollutants; (C) BAT to control toxic and nonconventional pollutants; and (D) Ocean Discharge Criteria (CWA section 403(c)). Discussions of the rationale for the specific effluent limitations for each regulated waste stream appear below. A table summarizing both existing and new permit limits and conditions is included as part of Appendix F of the proposed permit.

A. Drilling Fluids

The limitations in the current permit are based on a combination of National Effluent Limitations Guidelines and Ocean Discharge Criteria. The current permit's limitations are proposed to be included in the reissued permit.

1. NSPS, BAT, and BCT

Offshore subcategory guidelines for NSPS (40 CFR 435.15) and BAT (40 CFR 435.13) for drilling fluids discharges from facilities located farther than 3 nautical miles from shore (from the inner boundary of the territorial seas), require no discharge of free oil, no discharge of diesel oil, and a minimum toxicity limit of 3% by volume. In addition, the effluent limitations guidelines prohibit the discharge of non-aqueous based drilling fluids except those adhering to drill cuttings and some small volume discharges. Free oil, for drilling fluids discharges, is measured using the static sheen test method. Toxicity is measured with a 96 hour LC50 on the suspended particulate phase using the *Mysidopsis bahia* species. Based on the guidelines, cadmium and mercury in stock barite used in drilling fluids are limited to 3 mg/kg dry weight and 1 mg/kg dry weight, respectively.

2. Requirements Based on Ocean Discharge Criteria (CWA section 403(c))

In addition to those effluent limitations guidelines based limits, the reissued permit is proposed to retain the prohibitions of the discharge of oil-based drilling fluids, inverse emulsion drilling fluids, oil contaminated drilling fluids, and drilling fluids to which mineral oil has been added. These prohibitions were included in the permit to ensure compliance with the no discharge of free oil BAT and NSPS limitations. In the current permit, EPA has allowed the discharge of non-aqueous based fluids with water-based drilling fluids if a non-aqueous based fluid was added in water-based drilling fluids as a carrier agent or lubricity additive.

The current permit also contains discharge rate limitations for drilling fluids which ensure discharged drilling fluids are sufficiently dispersed to prevent unreasonable degradation of the marine environment. Those limitations are proposed to remain in the reissued permit.

B. Drill Cuttings

1. All Drill Cuttings

The main source of pollutants in discharged drill cuttings is generally from the drilling fluids which were used in the well. Therefore, based on BAT, BCT, and NSPS, drill cuttings which are authorized to discharge by the general permit must all meet the same limitations and prohibitions as drilling fluids. The discharge of drill cuttings generated using drilling fluids which are oil contaminated or contain diesel oil or mineral oil is prohibited. Cadmium and mercury, as measured in barite used in the drilling fluid, is limited to 3 mg/kg and 1 mg/kg, respectively. Also, the toxicity of the suspended particulate phase of the drilling fluids is limited to 30,000 ppm. Drill cuttings discharges are limited to no free oil, as measured using the static sheen test. These limitations are included in the current permit and are not changed in the reissued permit.

2. Drill Cuttings Generated Using Non-Aqueous Based Drilling Fluids

The current permit authorizes the discharge of drill cuttings generated by use of non-aqueous based drilling fluids. The limitations included in the permit were based on the Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards for the Oil and Gas Extraction Point Source Category, which was published in the Federal Register on January 22, 2001 (see 66 FR 6850). The limits were included in the permit for both the stock base fluids and those drilling fluids which adhere to discharged drill cuttings. Limitations on the stock base fluid include polynuclear aromatic hydrocarbons (PAH), sediment toxicity (10-day), and biodegradation rate. Prior to its use, the drilling fluid is also limited for formation oil contamination, measured using Gas Chromatography/Mass Spectrometry (GC/MS). Drilling fluids which adhere to discharged drill cuttings are limited for sediment toxicity (4-day), formation oil contamination as measured by either a reverse phase extraction test or GC/MS, and base fluids which are retained on discharged drill cuttings. No changes to those limits are proposed.

C. Produced Water

1. NSPS and BAT

The Offshore Subcategory guidelines for NSPS (40 CFR 435.15) and BAT (40 CFR 435.13) require Oil and Grease limits of 29 mg/l, monthly average, and 42 mg/l, daily maximum. Those limitations are contained in the current permit and are included in the proposed permit.

2. Ocean Discharge Criteria (CWA Section 403(c))

The 7-day toxicity limit and no free oil limit are contained in the current permit based on Ocean Discharge Criteria (CWA section 403(c)). No changes to those requirements are proposed as a part of this reissuance, other than for the purpose of calculating a critical dilution (the toxicity limit) and the toxicity testing frequency, flow should be analyzed on a yearly basis as opposed to every quarter as detailed in the previous permit. Toxicity data is now required to be submitted monthly, regardless of the testing frequency.

D. Produced Sand

1. NSPS, BAT and BCT

The current permit prohibits the discharge of produced sand based on NSPS, BAT, and BCT, established by the Offshore Subcategory Effluent Limitations Guidelines. That prohibition is proposed to be maintained.

E. Well Treatment, Completion and Workover Fluids

1. NSPS, BAT, and BCT

The Offshore Subcategory guidelines for NSPS and BAT require Oil and Grease limits of 29 mg/l, monthly average, and 42 mg/l, daily maximum, for well treatment, completion and workover fluids. A limit of no free oil was also established by the guidelines based on BCT. Those limits are contained in the current permit and are not proposed to be changed.

2. Ocean Discharge Criteria (CWA section 403(c))

Discharged well treatment, completion, and workover fluids are proposed to be limited to no free oil as measured using the static sheen test method and no priority pollutants except in trace amounts. If materials added downhole as well treatment, completion, and workover fluids do not contain priority pollutants then the discharge is assumed to contain no priority pollutants, except in trace amounts. The no free oil limit will help prevent the discharge of toxic pollutants contained in oil, which may contaminate these fluids and cause unreasonable degradation of the marine environment. The limit of no priority pollutants except in trace amounts will help prevent the discharge of fluids containing toxic pollutants which have the potential to cause unreasonable degradation of the marine environment. Both of these limits are included in the current permit based on Ocean Discharge Criteria under CWA section 403(c).

3. Toxicity Limits and Monitoring Requirement

An industry-wide toxicity study was performed from 2017-2020 as a requirement of the 2017 permit. A copy of the final report can be found at: https://www.epa.gov/system/files/documents/2022-06/Final%20Report%20TCW%20Fluids%20Aquatic%20Toxicity%20Joint%20Industry%20Project_0.pdf. During the study 28 samples were collected and tested for acute toxicity. 46% of the samples collected showed acute toxicity for one or more species indicating that there is reasonable potential for acute toxicity stemming from well treatment, completion and workover fluid discharge. Therefore in accordance with 40 CFR §122.44 (d)(1)(iv), acute WET limits are included in the proposed permit. Chronic toxicity monitoring will be a requirement of the proposed permit to assess potential for chronic effects.

F. Deck Drainage

1. NSPS, BAT and BCT

The current permit's limits are based on the Offshore Subcategory NSPS, BAT and BCT guidelines which all require No Discharge of free oil as determined by the presence of a film or sheen upon, or a discoloration of, the surface of the receiving water (visual sheen). No changes to those limits are proposed.

G. Sanitary Waste

1. NSPS and BCT

For sanitary waste, the Offshore Subcategory NSPS and BCT guidelines require residual chlorine to be a minimum of 1 mg/l and maintained as close to 1 mg/l as possible for offshore facilities continuously manned by ten or more persons. Also, the NSPS and BCT guidelines require No Discharge of floating solids for offshore facilities continuously manned by nine or fewer persons or intermittently manned by any number of persons. The current and proposed permits contain limits for sanitary wastewater which are based on those guidelines.

H. Domestic Waste

1. NSPS, BAT and BCT

The current and proposed permits' limits for domestic waste are based on the Offshore Subcategory NSPS, BAT and BCT established by the Effluent Limitations Guidelines. The guidelines require no floating solids or foam and require compliance with the requirements of 33 CFR Part 151-Vessels Carrying Oil, Noxious Liquid Substances, Garbage, Municipal or Commercial Waste, and Ballast Water.

I. Miscellaneous Discharges

1. Best Professional Judgment

The current permit's requirements of No Free Oil as monitored by the Visual Sheen Test and no floating solids or foam are based on BCT using Best Professional Judgment (BPJ) and are proposed to be continued in the reissued permit. These miscellaneous discharges are not addressed in the Offshore Subcategory guidelines. In addition, the miscellaneous discharges of chemically treated sea water and fresh water are limited for the concentration of treatment chemicals used based on BAT using BPJ and for whole effluent toxicity based on 403(c).

2. Ocean Discharge Criteria (CWA Section 403(c))

Fluids which are used as Sub Sea Wellhead Preservation Fluids, Sub Sea Production Control Fluids, Umbilical Steel Tube Storage Fluids, Leak Tracer Fluids, and Riser Tensioning Fluids shall have a 7-day No Observable Effect Concentration (NOEC) of no less than 50 mg/l. This permit action proposes to restrict the use of products which cannot meet the 50 mg/l NOEC limitation by not authorizing discharges if the product fails the toxicity test. Because subsea fluids are inherently stable, according to the OOC comments, it would be reasonable to conduct toxicity tests prior to the application of the product. Therefore, no discharge of a subsea fluid is

authorized if that product fails the 50 mg/l NOEC limit. Also, discharges of subsea fluid at a concentration above the product-specific NOEC are prohibited.

Because a 50 mg/l of powder dye solution is much more concentrated than a 50 mg/l of liquid dye solution, in the 2012 permit provided that the maximum concentration that can be used for leak testing is the 7-day NOEC for that specific powder dye.

Chemically treated miscellaneous discharges are required to comply with a 48-hour toxicity testing limitation prior to discharging.

J. All Discharges

For all permitted discharges, the current permit requires no discharge of halogenated phenols based on CWA section 403(c), no discharge of rubbish, trash and other refuse based on the International Convention for the Prevention of Ships (MARPOL), no discharge in areas of biological concern based on CWA section 403(c) and the minimization of discharge of surfactants, dispersants and detergents based on CWA section 403(c). These requirements are not proposed to be changed.

VI. Industry Requested Changes to the Permit

The Offshore Operators Committee (OOC) sent EPA a list of suggestions/recommended changes via an email, dated October 8, 2021, and March 15, 2022. Follows are brief discussions regarding OOC's requests for changes to the permit. Notice of Intent: The OOC is requesting changes to the permit language to allow for a non-eNOI version (Word, PDF, etc.) to be available to address situations where the eNOI system may be down for maintenance or other disruptions. Although EPA has responded previously that temporary disruptions to the eNOI system would not likely exceed 24 hours, this has not been the experience of operators. There are documented instances (as recently as June 2020) where operators have not been able to have NOIs certified for 2-3 days due to system maintenance. If no additional changes or modifications are expected from the current eNOI system and/or Effluent Limitations. Reapplying for coverage will be cumbersome and an additional undue burden will be placed on operators. OOC proposes to include the following language in the permit "Operators who filed eNOIs under the previous permit issued on September 30, 2017, will be authorized to discharge by this reissued permit without submittal of an NOI. For new dischargers not previously permitted, operators must submit a new eNOI prior to discharge. During any time the eNOI system is unavailable, operators may submit a short paper NOI which includes information a) through f) listed below or via email to R6_GMG29TEMPeNOI@epa.gov. The stamp date and time of the sent email is evidence of delivery for coverage. An official eNOI shall be filed within 45 days of submittal of paper eNOI.

In the current permit, when the system is unavailable eNOIs must be submitted within 7 days of the paper or temporary NOI. Given the fact that the system has been recorded to be down for 2 or more days, the renewal proposes to require eNOIs be submitted within 14 days of temporary NOI. In the renewal operators must continue to resubmit an eNOI for the renewed permit.

Operators must resubmit for coverage to ensure that information is current, and operators are still needing coverage.

Sanitary Waste (Facilities Continuously Manned for 30 or more consecutive days by 10 or More Persons; Facilities Continuously Manned for thirty or more consecutive days by 9 or Fewer Persons or Intermittently by Any Number); Domestic Waste – Monitoring Requirements: OOC requested to modify observation language to read “Observation must be made daily during daylight” in the previously listed sections of the permit to clarify that the permit requires daily observation for solids in the vicinity of sanitary and domestic waste outfalls.

EPA proposes to include this language in the permit to clarify that daily observations are required for solids in the vicinity of sanitary and domestic waste outfalls.

Well Treatment Fluids, Completion Fluids, Workover Fluids: OOC is requesting changes and additions to the permit language to expand the definition of the producing well as it pertains to the definition of "Workover Fluids" in Section G to include associated infrastructure and the workover system.

EPA proposes to include this language in the permit to clarify the definition of Workover Fluids.

Miscellaneous Discharges of Seawater and Freshwater which have been chemically treated – Monitoring Requirements: The OOC is requesting clarification of flow per bbl/ day. Flow estimated as bbl/day is consistent with NetDMR reporting as well as units in Appendix D Table 1: Produced Water Critical Dilutions. Flow rate (bbl/day) is used in CORMIX modeling to determine the critical dilution rather than total volume discharged per month. The OOC is also requesting to add subsea cleaning fluids to miscellaneous discharges.

EPA proposes to include this language in the permit to clarify the reporting units consistent with the definition of flow. EPA proposes to add subsea cleaning fluid to miscellaneous discharges category.

Cooling Water Intake Structure Requirements: OOC requests the removal of entrainment monitoring/sampling requirement and the addition of language requiring permittees to retain SEAMAP data and make it available to EPA upon request. OOC strongly objects to the continued requirement to conduct ongoing entrainment monitoring.

In the current permit EPA allows submittal of SEMAP reports in lieu of entrainment monitoring/sampling after the facility completes eight quarters of entrainment monitoring/sampling. In addition, the permit includes an exception for facilities which participated in the Gulf of Mexico Cooling Water Intake Structure Entrainment Monitoring Study. These facilities may start submitting SEAMAP data instead of entrainment monitoring. The renewal will maintain these same requirements.

Drill Cuttings: OOC is requesting that a gas chromatography/mass spectrometry (GC/MS) permit limit for reporting sample results be defined in the drill cutting's section of the permit. Currently there is no limit defined in the permit leaving the only reference to a specified limit for reporting in the EPA GC/MS 1655 test method, which is referenced in Appendix C. The permit specifies that a result greater than 1% is a failure, the OOC believes that sampling results lesser than or equal to 1% should not be reported while results greater than 1% would require reporting. OOC proposes that the following language be added in Part I.B.2.c.2 of the permit “Formation oil. No

discharge >1%. Monitoring shall be performed on the drilling fluid as follows: a) once prior to drilling using the gas chromatography/mass spectrometry test method 1655 specified in Part I, Section D.11 of this permit (see also 40 CFR Part 435, Subpart A, Appendix 5) with a permit limit of $\leq 1\%$. The test results shall be reported in the DMR as pass or fail.”

Although Appendix C 12.2.3 of the current permit states “If the ratio of the of the 105 Extracted Ion Profile (EIP) area to the TCB (trichlorobenzene) m/z 91 EIP area for the authentic sample is greater than that for the 1% formation oil equivalent calibration standard, the sample is considered contaminated with formation oil,” EPA test method GC/MS 1655 does not mention a 1% threshold for contamination nor does it discuss a pass or fail at a discharge less or greater than 1% respectively. As a result, EPA proposes to maintain the current language in the permit and maintain the limit for Formation Oil as no discharge.

Miscellaneous Discharges: The OOC requests that a reference to “Method 1007.0” be added to the permit for “Mysidopsis bahia (Mysid shrimp) chronic static renewal 7-day survival and growth test”. The reference to this method is currently missing from permit section Part I.B.10.a. The OOC requests to add language to modify the permit to account for situations where appropriate toxicity testing and measurement of fluids for use in a subsea location is performed within a year of their use but that may remain in that location for longer than a year following the measurement. Addition of this language would reduce the burden on operators in situations where no additional fluids are introduced into a subsea location for longer than a year, and the existing fluids have already been shown to be compliant with toxicity requirements after their initial introduction to the location. Once the fluids have been shown to be compliant, their toxicity should not increase if no additional fluids are introduced

EPA proposes to include a reference to Method 1007.0 in Part I.B.10.a of the permit and update the language in the toxicity requirement section of the miscellaneous discharges section to read. “Fluids which are used as subsea wellhead preservation fluids, subsea production control fluids, umbilical steel tube storage fluids, leak tracer fluids made without powder dye, and riser tensioning fluids shall have a 7-day No Observable Effect Concentration (NOEC) of no less than 50 mg/l prior to the discharge. For leak tracer fluid made from powder dye, the maximum concentration to be discharged shall be no greater than is the 7-day NOEC for that specific powder dye-; the 50 mg/l NOEC limit rule does not apply to leak tracer fluid made from powder dye. Compliance with this limit shall be measured at least once per year or within one year prior to initial subsea use for fluids that have not been previously tested, using the survival and sub-lethal endpoints, on each fluid added to an operation after the effective date of this permit.”

Chemically Treated Water: The OOC requests that the term “hydrostatic test water” be replaced with the term “chemically treated water” to simplify compliance with toxicity testing for multiple subsea discharge activities. This change would allow for subsea sampling beyond hydrostatic test wastewater.

EPA proposes to replace “hydrostatic test water” with “chemically treated miscellaneous seawater or freshwater” to clarify that operators may collect a sample for this monitoring requirement prior to use of the fluid in cases where the discharge point for any miscellaneous chemically treated discharge is subsea and it is impractical to collect a sample at the discharge point.

VII. Additional Proposed Changes from the Current Permit

This permit action is also proposing additional changes as below:

A. NOI

The current permit doesn't clarify requirements for MODUs. This permit renewal clarifies that an eNOI is required when a Mobile Offshore Drilling Unit or drilling vessel changes locations and moves to a new lease block.

The renewal also clarifies that a permitted feature ID number will be assigned once an eNOI has been accepted and adds a requirement for permittees to keep updated corporate officer and point of contact information.

The renewal permit requires permittees to make timely updates to CDX to keep contact information accurate. Changes must be reported within 30 days of occurring.

In the renewal Operators who filed eNOIs under the previous permit, will be authorized to discharge by this reissued permit without submittal of an NOI up to 60 days after the effective date of the reissued permit. Operators must file a new eNOI within 60 days of the effective date of the reissued permit to retain coverage.

The renewal clarifies that operators may submit temporary NOIs when the eNOI system is unavailable via email or paper. The previous permit did not include the option to provide a temporary NOI by email.

B. Transfers and Mergers

The permit doesn't clarify the manner in which to execute a transfers and mergers, which are separate processes. In the renewal, language has been provided to clarify that a merger requires a signed agreement and provides detail on the information that should be provided in a letter to EPA.

C. Continuation of Coverage for Existing Operators After the Permit Expires

The current permit does not provide language for coverage in the event the permit expires before re-issuance. Standard Administrative Continuance language has been added to the renewal.

D. Produced water monitoring requirements

Language has been added to the renewal to require operators to record and assess cause in the event of a sheen; and report total number of days observed. The operator is currently required to demonstrate proper operation of MSD via US Coast Guard approval, annual inspections, Class/Flag State inspections and/or the International Sewage Pollution Prevention Certificate (ISPPC) and maintenance logs/records. If these requirements are not met the operator must include this information in a non-compliance report to EPA, as this constitutes non-compliance with the permit.

Language has been updated to read "Samples also shall be representative of produced water discharges when hydrate inhibitors, scale inhibitors, corrosion inhibitors, biocides,

paraffin inhibitors, well completion fluids, workover fluids, well treatment fluids, and/or hydrate control fluids are used in operations and/or for jet lancing and flushing.”

E. Sanitary Waste Facilities

Language has been added to ensure EPA is made aware when U.S. Coast Guard requirements are not met. Failure to comply with U.S. Coast Guard inspection requirements must be submitted to EPA in a non-compliance report.

F. Definitions

The current permit doesn't clarify the definition of operator, barrel, Mobile Offshore Drilling Unit (MODU), manned facility, floating offshore facility, and discharge of pollutant. These definitions, found at 40, 30 and 33 CFR are included in the renewal.

G. Cooling water Intake Structure Requirements

The current permit doesn't clarify that the maximum through-screen design intake velocity shall not exceed 0.5 ft/s. The renewal clarifies this language and adds a requirement for the permittee to develop and implement an operation and maintenance plan and report dates and numeric exceedance numbers.

H. Monitoring and Records

The permit does not clarify how and when to report during periods of natural disasters, environmental conditions or weather related incidents. The renewal clarified NODI codes to use when reporting these issues and gives operators 30 days from incident to submit DMR's or other required reporting documents.

I. Mobile Offshore Drilling Units (MODUs)

In the current permit, it is unclear that MODUS are required to meet testing requirements during the time that they are operational, even if the operations are active for less than one year. Language has been added to clarify these reporting requirements for Mobile Offshore Drilling Units.

J. Radionuclides

The current permit does not address the discharge of radionuclides. EPA has been made aware that radioactive materials under the jurisdiction of the Nuclear Regulatory Commission (NRC), e.g., Iridium-192 and Scandium-46, are being used in small amounts in conjunction with proppants. EPA does not have authority to authorize discharges of radioactive materials that fall under the jurisdiction of the NRC. As a result, the renewal permit adds language to clarify that radionuclide discharges that fall under the jurisdiction of the NRC cannot be authorized by EPA and cannot be included in discharges authorized the permit unless separately authorized by the Nuclear Regulatory Commission (NRC).

K. Reporting requirements

The renewal permit clarifies that once a company is assigned a permit number, a new permit number cannot be assigned unless there is a company name change.

EPA has created a new portal for reporting noncompliance's which may endanger health and the environment. The current permit references R6GENPERMIT@epa.gov for reporting these noncompliance's. The renewal references the Offshore 24-Hour Reporting Application Portal and includes a link for access and clarifies that any sheen events associated with Miscellaneous Discharges, Miscellaneous Discharges of seawater and freshwater to which treatment chemicals have been added, Well Treatment Fluids, Completion Workover Fluids, Pipeline Brine, Produced Water, Deck Drainage, Drill Cuttings, and Drilling Fluids must be reported under the twenty-four hour reporting requirements.

L. Produced Water

In the current permit, flow for the purpose of calculating a critical dilution (the toxicity limit) and the toxicity testing frequency, flow is analyzed on a quarterly basis. The renewal permit proposes to analyze on a yearly basis to provide clarity and consistency in the flow calculation process. In addition, the renewal permit requires toxicity data to be submitted on a monthly basis, regardless of the testing frequency. This is to allow a space in the DMR to report data under a fluctuating frequency. If a test is not conducted every month, then the permittee must report "NODI 9" for toxicity data.

M. Well Treatment, Completion and Workover Fluids

As a result of the industry-wide toxicity study performed in 2017-2020 as a requirement of the 2017 permit, EPA is proposing to remove the industry wide study alternative from the renewal permit and include acute toxicity limits to discharges of well treatment, completion, and workover fluids. Data from the study indicated there is reasonable potential for acute toxicity stemming from these discharges. Therefore, in accordance with 40 CFR §122.44 (d)(1)(iv), acute WET limits are included. Chronic toxicity monitoring will be a requirement of the renewal permit to assess potential for chronic effects.

N. Toxicity Testing

The current permit does not include the appropriate invertebrate species for toxicity testing in seawater. As a result, the renewal permit replaces the use of *Mysidopsis bahia* with *Americamysis bahia*, which is the more appropriate invertebrate species that should be used when conducting toxicity testing in seawater environments.

O. Representative Discharges

Discharges sampled for compliance purposes cannot receive any treatment that is not provided to all discharges. The prohibition does not apply to sample preservation under 40 CFR §136.

VIII. References

1. Letter on October 8, 2021 from Offshore Operators Committee to Nichole Young regarding permit revisions for GMG290000 renewal 2022.
2. Letter on March 15, 2022 from Offshore Operators Committee to Nichole Young regarding permit revisions for GMG290000 renewal 2022.

3. Final Report TCW Fluids Aquatic Toxicity Joint Industry Project
https://www.epa.gov/system/files/documents/2022-06/Final%20Report%20TCW%20Fluids%20Aquatic%20Toxicity%20Joint%20Industry%20Project_0.pdf
4. 40 CFR §435 Subpart A, 40 CFR §122, & 40 CFR §136
5. Biological Opinion on the Federally Regulated Oil and Gas Program Activities in the Gulf of Mexico <https://www.fisheries.noaa.gov/resource/document/biological-opinion-federally-regulated-oil-and-gas-program-activities-gulf-mexico>
6. 2017-2022 Gulf Of Mexico Multisale Environmental Impact Statement
<https://www.boem.gov/2017-2022-gulf-mexico-multisale-environmental-impact-statement>

ADDENDUM TO THE FACT SHEET AND SUPPLEMENTAL INFORMATION FOR THE
PROPOSED REISSUANCE OF THE NPDES GENERAL PERMIT FOR NEW AND
EXISTING SOURCES IN THE OFFSHORE SUBCATEGORY OF THE OIL AND GAS
EXTRACTION POINT SOURCE CATEGORY FOR THE WESTERN PORTION OF THE
OUTER CONTINENTAL SHELF OF THE GULF OF MEXICO (GMG290000)

Produced Water Critical Dilution Percent Effluent Values

The critical dilution percent effluent tables are retained from the current general permit (GMG290000). CORMIX 7.0.0.0 was employed to determine the critical dilutions used at the edge of the 100-meter regulatory mixing zone. The common parameters for all model runs are arranged by the appropriate input parameter pages.

1. *Effluent Characterization*

- a. The pollutant is assumed to function as a conserved pollutant which means that the pollutant does not undergo any decay or growth processes.
- b. The pollutant discharge concentration is set to 100% which is appropriate for the characterization of the discharge.
- c. Effluent density is the averaged value (1070 kg/m^3) based on previously obtained data used for the preceding issuance of the GMG290000 permit.

2. *Ambient Geometry*

- a. The average depth and the depth at discharge are presumed to be the same in the Gulf of Mexico. This assumption is representative for the vast majority of the seafloor in the Gulf. The depths are varied according to the modeled input parameters.
- b. Wind Speed (U_w) parameter is set to 4 m/s which is representative of a light wind at the design conditions.
- c. The ambient velocity (U_a) is set to 0.1 m/s which is conservative with respect to the dispersion of the pollutant and current speeds in the Gulf of Mexico.
- d. The water body is considered to be unbounded which is appropriate in an ocean setting.
- e. Bottom friction (Manning n) is considered to be low based upon the character of the bottom of the OCS. A representative value for a smooth bottom and no weeds was used which is represented by a value of 0.020.
- f. In the ambient density data field, a non-fresh water density of 1017 kg/m^3 is an appropriate salt water density at the surface. A linear density gradient of $0.182 \text{ kg/m}^3/\text{m}$ is used which is appropriate given the maximum density (bottom density- RHOAB) used in the modeling is 1020.822 kg/m^3 .

3. *Discharge Geometry*

- a. The CORMIX1 Single Port model is utilized in this exercise.
- b. The nearest bank is set to 3000 m to the left which is the minimum distance which is appropriate to the OCS.
- c. Port diameter is varied with the representative diameters used in the modeling exercise.
- d. A submerged offshore discharge configuration is used with a submerged port height of 20 cm below the surface. The 20 cm above the port is not included in the density gradient portion of the calculation.
- e. The appropriate vertical angle (θ) and horizontal angle (σ) for a topside downward oriented pipe are -90° and 0° respectively.

4. *Mixing Zone Specifications*

- a. No water quality standard is specified in the modeled iterations
- b. A downstream mixing zone distance is set to 100 m.
- c. The region of interest is 3000 m.

The tables representing the appropriate critical dilution effluent percentages are as follows:

| Discharge Rate (bbl/day) | Pipe Diameter (inches) | | | | | |
|-----------------------------|------------------------|-----------|-----------|------------|-------------|------|
| | >0" to 5" | >5" to 7" | >7" to 9" | >9" to 11" | >11" to 15" | >15" |
| 0 to 500 | 0.07 | 0.20 | 0.16 | 0.13 | 0.10 | 0.08 |
| 501 to 1000 | 0.16 | 0.39 | 0.32 | 0.26 | 0.20 | 0.16 |
| 1001 to 2000 | 0.35 | 0.35 | 0.63 | 0.56 | 0.40 | 0.31 |
| 2001 to 3000 | 0.55 | 0.54 | 0.94 | 0.79 | 0.60 | 0.47 |
| 3001 to 4000 | 0.89 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| 4001 to 5000 | 1.14 | 1.09 | 1.08 | 1.08 | 1.08 | 1.08 |
| 5001 to 6000 | 1.40 | 1.35 | 1.30 | 1.31 | 1.31 | 1.31 |
| 6001 to 7000 | 1.66 | 1.59 | 1.51 | 1.53 | 1.53 | 1.54 |
| 7001 to 8000 | 1.90 | 1.83 | 1.75 | 1.74 | 1.73 | 1.73 |
| 8001 to 9000 | 2.13 | 2.07 | 2.00 | 1.94 | 1.93 | 1.94 |
| 9001 to 10,000 | 2.38 | 2.30 | 2.21 | 2.13 | 2.13 | 2.14 |
| 10,001 to 15,000 | 3.15 | 3.39 | 3.28 | 3.18 | 3.04 | 3.04 |
| 15,001 to 20,000 | 4.34 | 4.39 | 4.25 | 4.15 | 3.83 | 3.92 |

| | | | | | | |
|------------------|------|-------|-------|-------|-------|-------|
| 20,001 to 25,000 | 5.14 | 5.43 | 5.20 | 5.17 | 4.77 | 4.46 |
| 25,001 to 35,000 | 6.36 | 7.18 | 7.18 | 6.86 | 6.56 | 5.96 |
| 35,001 to 50,000 | 7.29 | 8.91 | 9.44 | 9.20 | 8.62 | 8.03 |
| 50,001 to 75,000 | 8.33 | 10.52 | 11.72 | 12.22 | 11.34 | 10.90 |

Table 1-B: Critical Dilution (Percent Effluent) for Discharges with a Depth Difference Between the Discharge Pipe and the Sea Floor of Greater than 4 Meters to 6 Meters

| Discharge Rate (bbl/day) | Pipe Diameter (inches) | | | | | |
|-----------------------------|------------------------|-----------|-----------|------------|-------------|------|
| | >0" to 5" | >5" to 7" | >7" to 9" | >9" to 11" | >11" to 15" | >15" |
| 0 to 500 | 0.07 | 0.14 | 0.11 | 0.09 | 0.07 | 0.05 |
| 501 to 1000 | 0.10 | 0.27 | 0.22 | 0.18 | 0.14 | 0.11 |
| 1001 to 2000 | 0.18 | 0.18 | 0.44 | 0.37 | 0.28 | 0.22 |
| 2001 to 3000 | 0.29 | 0.29 | 0.66 | 0.55 | 0.42 | 0.33 |
| 3001 to 4000 | 0.40 | 0.39 | 0.39 | 0.74 | 0.56 | 0.43 |
| 4001 to 5000 | 0.51 | 0.50 | 0.49 | 0.92 | 0.70 | 0.54 |
| 5001 to 6000 | 0.75 | 0.73 | 0.70 | 0.71 | 0.70 | 0.70 |
| 6001 to 7000 | 0.90 | 0.87 | 0.83 | 0.82 | 0.83 | 0.83 |
| 7001 to 8000 | 1.05 | 1.01 | 0.97 | 0.96 | 0.96 | 0.96 |
| 8001 to 9000 | 1.18 | 1.15 | 1.10 | 1.08 | 1.08 | 1.08 |
| 9001 to 10,000 | 1.32 | 1.28 | 1.24 | 1.19 | 1.20 | 1.20 |
| 10,001 to 15,000 | 1.93 | 1.92 | 1.87 | 1.81 | 1.78 | 1.75 |
| 15,001 to 20,000 | 2.46 | 2.52 | 2.42 | 2.34 | 2.24 | 2.25 |
| 20,001 to 25,000 | 2.97 | 3.02 | 2.94 | 2.95 | 2.76 | 2.73 |
| 25,001 to 35,000 | 3.75 | 4.00 | 4.01 | 3.95 | 3.82 | 3.54 |
| 35,001 to 50,000 | 4.54 | 5.31 | 5.43 | 5.37 | 5.14 | 4.84 |
| 50,001 to 75,000 | 5.49 | 6.64 | 7.14 | 7.34 | 6.90 | 6.73 |

Table 1-C: Critical Dilution (Percent Effluent) for Discharges with a Depth Difference Between the Discharge Pipe and the Sea Floor of Greater than 6 Meters to 9 Meters

| Discharge Rate | Pipe Diameter (inches) | | | | | |
|------------------|------------------------|-----------|-----------|------------|-------------|------|
| | >0" to 5" | >5" to 7" | >7" to 9" | >9" to 11" | >11" to 15" | >15" |
| 0 to 500 | 0.08 | 0.10 | 0.08 | 0.06 | 0.05 | 0.04 |
| 501 to 1000 | 0.11 | 0.19 | 0.15 | 0.13 | 0.10 | 0.08 |
| 1001 to 2000 | 0.14 | 0.14 | 0.31 | 0.26 | 0.20 | 0.15 |
| 2001 to 3000 | 0.17 | 0.17 | 0.46 | 0.39 | 0.29 | 0.23 |
| 3001 to 4000 | 0.20 | 0.20 | 0.20 | 0.51 | 0.39 | 0.30 |
| 4001 to 5000 | 0.24 | 0.24 | 0.23 | 0.64 | 0.49 | 0.38 |
| 5001 to 6000 | 0.30 | 0.29 | 0.29 | 0.29 | 0.59 | 0.46 |
| 6001 to 7000 | 0.36 | 0.35 | 0.34 | 0.34 | 0.69 | 0.53 |
| 7001 to 8000 | 0.48 | 0.47 | 0.45 | 0.45 | 0.45 | 0.45 |
| 8001 to 9000 | 0.56 | 0.54 | 0.52 | 0.51 | 0.52 | 0.52 |
| 9001 to 10,000 | 0.63 | 0.62 | 0.60 | 0.58 | 0.58 | 0.58 |
| 10,001 to 15,000 | 0.99 | 0.98 | 0.95 | 0.92 | 0.90 | 0.91 |
| 15,001 to 20,000 | 1.29 | 1.34 | 1.30 | 1.26 | 1.19 | 1.20 |
| 20,001 to 25,000 | 1.58 | 1.61 | 1.58 | 1.57 | 1.50 | 1.49 |
| 25,001 to 35,000 | 2.11 | 2.15 | 2.15 | 2.09 | 2.07 | 1.95 |
| 35,001 to 50,000 | 2.69 | 2.88 | 2.91 | 2.91 | 2.85 | 2.71 |
| 50,001 to 75,000 | 3.37 | 3.90 | 4.12 | 4.15 | 4.01 | 3.94 |

Table 1-D: Critical Dilution (Percent Effluent) for Discharges with a Depth Difference Between the Discharge Pipe and the Sea Floor of Greater than 9 Meters to 12 Meters

| Discharge Rate | Pipe Diameter (inches) | | | | | |
|----------------|------------------------|-----------|-----------|------------|-------------|------|
| | >0" to 5" | >5" to 7" | >7" to 9" | >9" to 11" | >11" to 15" | >15" |
| 0 to 500 | 0.08 | 0.07 | 0.06 | 0.05 | 0.04 | 0.03 |
| 501 to 1000 | 0.11 | 0.15 | 0.12 | 0.10 | 0.08 | 0.06 |
| 1001 to 2000 | 0.14 | 0.14 | 0.24 | 0.20 | 0.15 | 0.12 |

| | | | | | | |
|------------------|------|------|------|------|------|------|
| 2001 to 3000 | 0.17 | 0.17 | 0.36 | 0.30 | 0.23 | 0.18 |
| 3001 to 4000 | 0.19 | 0.19 | 0.19 | 0.40 | 0.31 | 0.24 |
| 4001 to 5000 | 0.21 | 0.21 | 0.21 | 0.50 | 0.38 | 0.30 |
| 5001 to 6000 | 0.23 | 0.23 | 0.23 | 0.23 | 0.46 | 0.36 |
| 6001 to 7000 | 0.24 | 0.24 | 0.24 | 0.24 | 0.53 | 0.41 |
| 7001 to 8000 | 0.19 | 0.19 | 0.19 | 0.19 | 0.61 | 0.47 |
| 8001 to 9000 | 0.20 | 0.20 | 0.20 | 0.20 | 0.69 | 0.53 |
| 9001 to 10,000 | 0.30 | 0.23 | 0.23 | 0.23 | 0.76 | 0.59 |
| 10,001 to 15,000 | 0.74 | 0.74 | 0.72 | 0.70 | 0.69 | 0.69 |
| 15,001 to 20,000 | 0.76 | 0.77 | 0.75 | 0.75 | 0.72 | 0.72 |
| 20,001 to 25,000 | 0.97 | 0.98 | 0.96 | 0.94 | 0.91 | 0.90 |
| 25,001 to 35,000 | 1.34 | 1.34 | 1.34 | 1.32 | 1.29 | 1.24 |
| 35,001 to 50,000 | 1.79 | 1.81 | 1.86 | 1.82 | 1.80 | 1.73 |
| 50,001 to 75,000 | 2.37 | 2.58 | 2.64 | 2.61 | 2.61 | 2.55 |

Table 1-E: Critical Dilution (Percent Effluent) for Lower Volume Discharges with a Depth Difference Between the Discharge Pipe and the Sea Floor of Greater than 12 Meters

| Discharge Rate (bbl/day) | Pipe Diameter (inches) | | | | | |
|-----------------------------|------------------------|-----------|-----------|------------|-------------|------|
| | >0" to 5" | >5" to 7" | >7" to 9" | >9" to 11" | >11" to 15" | >15" |
| 0 to 500 | 0.08 | 0.07 | 0.05 | 0.04 | 0.03 | 0.03 |
| 501 to 1000 | 0.11 | 0.13 | 0.10 | 0.09 | 0.07 | 0.05 |
| 1001 to 2000 | 0.15 | 0.15 | 0.21 | 0.18 | 0.13 | 0.10 |
| 2001 to 3000 | 0.17 | 0.17 | 0.31 | 0.26 | 0.20 | 0.16 |
| 3001 to 4000 | 0.19 | 0.19 | 0.19 | 0.35 | 0.27 | 0.21 |
| 4001 to 5000 | 0.21 | 0.21 | 0.21 | 0.44 | 0.33 | 0.26 |
| 5001 to 6000 | 0.23 | 0.23 | 0.23 | 0.23 | 0.40 | 0.31 |
| 6001 to 7000 | 0.24 | 0.24 | 0.24 | 0.24 | 0.47 | 0.36 |
| 7001 to 8000 | 0.19 | 0.19 | 0.19 | 0.19 | 0.53 | 0.41 |

| Table 1-F: Critical Dilution (Percent Effluent) for Higher Volume Discharges with a Depth Difference Between the Discharge Pipe and the Sea Floor of Greater than 12 Meters | | | | | | |
|--|-------------------------------|---------------------|---------------------|----------------------|-----------------------|----------------|
| Depth Difference Greater than 12 Meters to 14 Meters | | | | | | |
| Discharge Rate | Pipe Diameter (inches) | | | | | |
| (bbl/day) | >0" to 5" | >5" to 7" | >7" to 9" | >9" to 11" | >11" to 15" | >15" |
| 8001 to 9000 | 0.20 | 0.20 | 0.20 | 0.20 | 0.60 | 0.47 |
| 9001 to 10,000 | 0.21 | 0.21 | 0.21 | 0.21 | 0.67 | 0.52 |
| 10,001 to 15,000 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 |
| 15,001 to 20,000 | 0.73 | 0.74 | 0.71 | 0.71 | 0.68 | 0.68 |
| 20,001 to 25,000 | 0.94 | 0.95 | 0.93 | 0.92 | 0.89 | 0.88 |
| 25,001 to 35,000 | 1.06 | 1.04 | 1.21 | 1.02 | 0.99 | 0.96 |
| 35,001 to 50,000 | 1.47 | 1.48 | 1.42 | 1.45 | 1.43 | 1.38 |
| 50,001 to 75,000 | 1.90 | 2.06 | 2.04 | 2.06 | 2.02 | 1.98 |
| Depth Difference Greater than 14 Meters to 16 Meters | | | | | | |
| Discharge Rate | Pipe Diameter (inches) | | | | | |
| (bbl/day) | >0" to 5" | >5" to 7" | >7" to 9" | >9" to 11" | >11" to 15" | >15" |
| 8001 to 9000 | 0.20 | 0.20 | 0.20 | 0.20 | 0.53 | 0.41 |
| 9001 to 10,000 | 0.21 | 0.21 | 0.21 | 0.21 | 0.59 | 0.46 |
| 10,001 to 15,000 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 |
| 15,001 to 20,000 | 0.43 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 |
| 20,001 to 25,000 | 0.68 | 0.69 | 0.67 | 0.67 | 0.64 | 0.48 |
| 25,001 to 35,000 | 1.05 | 1.03 | 1.02 | 1.01 | 0.99 | 0.95 |
| 35,001 to 50,000 | 1.48 | 1.48 | 1.45 | 1.44 | 1.42 | 1.39 |
| 50,001 to 75,000 | 1.62 | 1.69 | 1.70 | 1.69 | 1.68 | 1.63 |
| Depth Difference Greater than 16 Meters to 19 Meters | | | | | | |
| Discharge Rate | Pipe Diameter (inches) | | | | | |

| (bbl/day) | >0" to 5" | >5" to 7" | >7" to 9" | >9" to 11" | >11" to 15" | >15" |
|--|-------------------------------|---------------------|---------------------|----------------------|-----------------------|----------------|
| 8001 to 9000 | 0.20 | 0.20 | 0.20 | 0.21 | 0.46 | 0.36 |
| 9001 to 10,000 | 0.21 | 0.21 | 0.21 | 0.21 | 0.51 | 0.40 |
| 10,001 to 15,000 | 0.39 | 0.39 | 0.39 | 0.40 | 0.40 | 0.40 |
| 15,001 to 20,000 | 0.44 | 0.44 | 0.44 | 0.45 | 0.45 | 0.45 |
| 20,001 to 25,000 | 0.48 | 0.48 | 0.48 | 0.49 | 0.49 | 0.49 |
| 25,001 to 35,000 | 0.55 | 0.55 | 0.55 | 0.57 | 0.57 | 0.57 |
| 35,001 to 50,000 | 1.07 | 1.06 | 1.04 | 1.02 | 1.00 | 0.96 |
| 50,001 to 75,000 | 1.58 | 1.61 | 1.60 | 1.59 | 1.54 | 1.53 |
| Depth Difference Greater than 19 Meters | | | | | | |
| Discharge Rate | Pipe Diameter (inches) | | | | | |
| (bbl/day) | >0" to 5" | >5" to 7" | >7" to 9" | >9" to 11" | >11" to 15" | >15" |
| 8001 to 9000 | 0.20 | 0.20 | 0.20 | 0.20 | 0.42 | 0.33 |
| 9001 to 10,000 | 0.21 | 0.21 | 0.21 | 0.21 | 0.47 | 0.36 |
| 10,001 to 15,000 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 | 0.39 |
| 15,001 to 20,000 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 |
| 20,001 to 25,000 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 | 0.48 |
| 25,001 to 35,000 | 0.55 | 0.55 | 0.55 | 0.55 | 0.56 | 0.56 |
| 35,001 to 50,000 | 0.64 | 0.64 | 0.64 | 0.65 | 0.65 | 0.65 |
| 50,001 to 75,000 | 1.32 | 1.33 | 1.32 | 1.30 | 1.26 | 1.25 |

CORMIX 7.0.0.0 is the latest version of the CORMIX model available to the Agency at the time of revised effluent table development and represents the most robust version of the model used in the effort to describe the critical dilutions. Several significant updates are included in the latest version when compared to the previous model versions used (CORMIX 3.2/4.0) in the critical dilution percent effluent tables. A list of features, updates, and bug fixes can be found at http://www.mixzon.com/quality_assurance.php. In particular, the handling of negatively buoyant plumes and density gradients has been addressed.

In summary, Tables 1-A through 1-F hereby supersede all previous iterations of the critical dilution percent effluent tables and should be utilized in all instances associated with the general permit number GMG290000.

SUPPLEMENTAL INFORMATION FOR OTHER STATUTORY AND REGULATORY REQUIREMENTS:

Clean Water Act. The Clean Water Act (“CWA”) establishes a comprehensive program “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” 33 U.S.C. § 1251(a). The CWA also includes the objective of attaining “water quality which provides for the protection and propagation of fish, shellfish and wildlife and . . . recreation in and on the water.” 33 U.S.C. § 1251(a)(2)). To achieve these goals, the CWA requires EPA to control point source discharges of pollutants to Waters of the United States through the issuance of National Pollutant Discharge Elimination System (“NPDES”) permits.

NPDES permits issued for oil and gas exploration, development, and production discharges are required under Section 402(a)(1) of the CWA to include conditions for meeting technology-based effluent limits established under Section 301 and, where applicable, Section 306. Once an effluent limitations guideline or new source performance standard is promulgated in accordance with these sections, NPDES permits issued by the NPDES permitting authorities must incorporate requirements based on such limitations and standards. See 40 CFR 122.44(a)(1). Effluent limitation guidelines for the Offshore Subcategory of the Oil and Gas Extraction Point Source Category are found at 40 CFR 435, Subpart A.

Oil Spill Requirements. Section 311 of the Clean Water Act, (CWA or the Act), prohibits the discharge of oil and hazardous materials in harmful quantities. Discharges that are authorized by NPDES permits are excluded from the provisions of Section 311. However, the permit does not preclude the institution of legal action or relieve permittees from any responsibilities, liabilities, or penalties for other, unauthorized discharges of oil and hazardous materials which are covered by Section 311 of the Act. This permit does not authorize spills or any uncontrolled discharges.

Ocean Discharge Criteria Evaluation. When issuing permits for discharges into waters of the territorial sea, contiguous zone, or oceans, CWA section 403 requires EPA to consider guidelines for determining potential degradation of the marine environment. These Ocean Discharge Criteria (40 CFR 125, Subpart M) are intended to "prevent unreasonable degradation of the marine environment and to authorize imposition of effluent limitations, including a prohibition of discharge, if necessary, to ensure this goal" (see 45 FR 65942, October 3, 1980). EPA Region 6 has previously determined that discharges in compliance with the Western Gulf of Mexico Outer Continental Shelf general permit (GMG290000) will not cause unreasonable degradation of the marine environment (see 57 FR 54642, November 19, 1992, 64 FR 19156, April 19, 1999, 66 FR 65209, December 18, 2001, 69 FR 60150, October 7, 2004, 72 FR 31575, June 7, 2007, 77 FR 61605, October 10, 2012, and 82 FR 45845, October 2, 2017). EPA had also completed a study of the effects of produced water discharges on hypoxia in the northern Gulf of Mexico and found that these discharges would not have a significant impact. (See Predicted Impacts from Offshore Produced Water Discharges on Hypoxia in the Gulf of Mexico, Limno-Tech, Inc., 2006). Since this reissued permit contains limitations that will protect water quality and in

general reduce the discharge of toxic pollutants to the marine environment, the Region finds that discharges authorized by the reissued general permit will not likely cause unreasonable degradation of the marine environment.

Marine Protection, Research, and Sanctuaries Act. The Marine Protection, Research and Sanctuaries Act (MPRSA) of 1972 regulates the transportation for dumping of materials into ocean waters and establishes permit programs for ocean dumping. The NPDES permit EPA reissues today does not authorize dumping under MPRSA.

In addition to the MPRSA establishes the Marine Sanctuaries Program, implemented by the National Oceanographic and Atmospheric Administration (NOAA), which requires NOAA to designate certain ocean waters as marine sanctuaries for the purpose of preserving or restoring their conservation, recreational, ecological or aesthetic values. Pursuant to the Marine Protection and Sanctuaries Act, NOAA has designated the Flower Garden Banks, an area within the coverage of the OCS general permit, a marine sanctuary. The OCS general permit prohibits discharges in areas of biological concern, including marine sanctuaries. The permit authorizes discharges incidental to oil and gas production from a facility which predates designation of the Flower Garden Banks National Marine Sanctuary as a marine sanctuary. EPA has previously worked extensively with NOAA to ensure that authorized discharges are consistent with regulations governing the National Marine Sanctuary.

National Environmental Policy Act. Pursuant to the National Environmental Policy Act (NEPA) (42 U.S.C. 4321-4307h), the Council on Environmental Quality's NEPA regulations (40 CFR part 15), and EPA's regulations for implementing NEPA (40 CFR part 6), EPA has determined that the 2022 reissuance of the OCS General Permit is eligible for a categorical exclusion requiring documentation under 40 CFR 6.204(a)(1)(iv). This category includes “actions involving reissuance of a NPDES permit for a new source providing the conclusions of the original NEPA document are still valid, there will be no degradation of the receiving waters, and the permit conditions do not change or are more environmentally protective.” . In connection with its oil and gas leasing programs under the Outer Continental Shelf Lands Act, the Bureau of Ocean Energy Management of the Department of Interior (BOEM) has prepared and published an environmental impact statements (EIS) on potential impacts of oil and gas operations in the Central and Western Gulf of Mexico for the 2017 - 2022 period. The analysis and conclusions regarding the potential environmental impacts, reasonable alternatives, and potential mitigation included in the EIS are still valid for the 2022 reissuance of the OCS General Permit because the proposed permit conditions are either the same or more environmentally protective. Actions may be categorically excluded if the action fits within a category of action that is eligible for exclusion and the proposed action does not involve any extraordinary circumstances. EPA has reviewed the proposed action and determined that the 2022 reissuance of the OCS General Permit does not involve any extraordinary circumstances listed in 6.204(b)(1) through (10). Prior to the issuance of the final 2022 OCS General Permit, the EPA Responsible Official will document the application of the categorical exclusion and will make it available to the public on EPA's website at <https://cdxnodengn.epa.gov/cdx-enepa->

public/action/nepa/search. If new information or changes to the proposed permit involve or relate to at least one of the extraordinary circumstances or otherwise indicate that the permit may not meet the criteria for categorical exclusion, EPA will prepare an EA or Environmental Impact Statement (EIS). Information provided in the EIS supports the Ocean Discharge Criteria evaluation.

Magnuson-Stevens Fisheries Conservation and Management Act. The Magnuson-Stevens Fisheries Conservation and Management Act requires that federal agencies proposing to authorize actions that may adversely affect essential fish habitat (EFH) consult with NMFS. The entire Gulf of Mexico has been designated EFH. EPA intends to adopt the EFH analysis BOEM prepared in the above mentioned Draft EIS for lease sales in the Western and Central Planning Areas (WPA and CPA). BOEM concludes in the Draft EIS that “Impacts of routine dredging and discharges are localized in time and space and are regulated by Federal and State agencies through permitting processes; therefore, there would be minimal impact to fish resources and essential fish habitat from these routine activities associated with a WPA or CPA proposed action.” BOEM also concludes that “If there is an effect of an oil spill on fish resources in the Gulf of Mexico, it is expected to cause a minimal decrease in standing stocks of any population. This is because most spill events would be localized, therefore affecting a small portion of fish populations.” This permit contains limitations conforming to EPA’s Oil and Gas extraction, Offshore Subcategory Effluent Limitations Guidelines at 40 CFR Part 435 and additional requirements assuring that regulated discharges will cause no unreasonable degradation of the marine environment, as required by section 403(c) of the Clean Water Act. This permit also does not authorize spills or any uncontrolled discharges.

Endangered Species Act (ESA). On March 13, 2020 National Marine Fisheries Service issued an Endangered Species Act Section 7 Biological Opinion on the Federally Regulated Oil and Gas Program Activities in the Gulf of Mexico. EPA has initiated a review with National Marine Fisheries Service to ensure that all activities are consistent with those described in the Biological Opinion. The main changes to the permit include new intake structure requirements and more stringent whole effluent toxicity limits based on sub-lethal effects. Since those changes would increase the level of protection, EPA determined that reissuance of the permit was not likely to adversely affect any listed threatened or endangered species or their critical habitat.

EPA is evaluating the effects caused by this permit reissuance action upon the baseline of the Biological Opinion. EPA will meet its responsibility to fulfill the section 7 of the ESA requirements prior to reissuance of this general permit.

National Historic Preservation Act. Facilities which adversely affect properties listed or eligible for listing in the National Register of Historic Places are not authorized to discharge under this permit.

Coastal Zone Management Act. EPA determined that activities proposed to be authorized by this reissued permit are consistent with the local and state Coastal Zone Management Plans. The proposed permit and consistency determination was submitted to the State of Louisiana and the

State of Texas for interagency review at the time of public notice. Concurrence was received from both Louisiana Department of Natural Resources and Railroad Commission of Texas on the 2017 permit. EPA again determines that reissuance of this permit is consistent with the local and state Coastal Zone Management Plans. The proposed permit and consistency determination are submitted to the State of Louisiana and the State of Texas for interagency review at the time of public notice.

Paperwork Reduction Act. The information collection required by this permit will reduce paperwork significantly by implementation of electronic reporting requirements. EPA estimates that it takes 10 to 15 minutes to fill up all information required by eNOI for each facility. And it takes much less time to add, delete, or modify eNOI. EPA also requires an electronic discharge monitoring report (NetDMR) requirement in the permit. The time for NetDMR preparation will be much less than that for paper DMR. The electronic filing systems will also significantly reduce the mailing cost.

The information collection activities in this permit are authorized by OMB, see “ICR Supporting Statement Information Collection Request for National Pollutant Discharge Elimination System (NPDES) Program (Renewal)” (EPA ICR No. 0229.25, OMB Control No. 2040-0004). EPA has requested extension of the ICR, which was approved through March 31, 2022.

Regulatory Flexibility Act. The Regulatory Flexibility Act, 5 U.S.C. 601 *et seq.*, requires that EPA prepare a regulatory flexibility analysis for regulations that have a significant impact on a substantial number of small entities. As indicated below, the permit reissuance proposed today is not a “rule” subject to the Regulatory Flexibility Act. EPA prepared a regulatory flexibility analysis, however, on the promulgation of the Offshore Subcategory guidelines on which many of the permit’s effluent limitations are based. That analysis shows that reissuance of this permit will not have a significant impact on a substantial number of small entities.

State Water Quality Standards and State Certification. The permit does not authorize discharges to State waters; therefore, the state water quality certification provisions of CWA section 401 do not apply to this proposed action.

Impact on Small Businesses. EPA analyzed the potential impact of today’s permit on small entities and concludes that this permit reissuance will not have a significant impact on a substantial number of small entities. All changes from the 2017 permit result in either no or negligible incremental cost and no or negligible operational and/or economical burdens. In addition, there are not a substantial number of small entities affected by this permit as EPA understands that there are few, if any, small businesses that are owners or operators of facilities subject to this permit. EPA did not conduct a quantitative analysis of impacts for this permit, as that would only be appropriate if the permit may affect a substantial number of small entities.

Additionally, EPA previously found that the promulgation of the Offshore Subcategory guidelines on which many of the permit's effluent limitations are based did not have a significant impact on a substantial number of small entities. The permit also contains limits based on CWA 403(c) Ocean Discharge Criteria evaluation, but these limits did not change from the 2017 permit limits based on that analysis.